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09/933,987	08/21/2001	Jeffrey Alan Silvernail	UDC-22501	7653
27774	7590	08/02/2004	EXAMINER	
MAYER, FORTKORT & WILLIAMS, PC 251 NORTH AVENUE WEST 2ND FLOOR WESTFIELD, NJ 07090			ROY, SIKHA	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 08/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.

09/933,987

Applicant(s)

SILVERNAIL ET AL.

Examiner

Sikha Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-9,12-20,26-40 and 42-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-9,12-20,26-40 and 42-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

The Amendment, filed on June 17, 2004 has been entered and is acknowledged by the Examiner.

Cancellation of claims 6,10,11,21-25,41 has been entered.

#### ***Claim Objections***

Claim 36 is objected to because of the following informalities:

Claim 36 recites the limitation ' the flexible cover does not comprise substrate-sub-layer' which is not supported by the disclosure. The specification (Page 9 [0043] ) discloses that ' to the extent the cooperative barrier sub-layers can be applied to an existing structure substrate sub-layer 111 can be eliminated'. Figure 3 shows the substrate sub-layer 111 is the bottom substrate. There is no disclosure of cover not having substrate sub-layer.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9, 31 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 depending on claim 1 recites the limitation "OLED device structure is flexed " but claim 1 does not recite flexible OLED structure. There is insufficient antecedent basis for this limitation in the claim.

The term "small dots" in claims 31 and 42 is a relative term which renders the claims indefinite. The term "small dots" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree of smallness of the dots of getter material and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 7 - 9, 16, 17, 19, 20, 43, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,081,071 to Rogers and further in view of U.S. Patent 6,624,570 to Nishio et al.

Regarding claim 1 Rogers discloses (column 2 lines 45-65, column 3 lines 4-6 Fig. 10) an organic EL apparatus comprising a substrate 12, an organic electroluminescent device 13 comprising laminate structure of organic light emitting

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region deposited between anode and cathode (pair of electrodes) disposed over the substrate, a cover 11 generally constructed of glass or transparent material over the display area wherein cover permits transmission of light from pixels to outer environment and restricts transmission of oxygen and water from outer environment to the organic display area. Rogers further discloses desiccant 31 patterned near the perimeter seal of the cover, substantially avoiding obstructing and transmission of light from the pixels to the outer environment.

Claim 1 differs from Rogers in that Rogers does not exemplify the portion of the patterned getter layer provided between some of the plurality of pixels.

Nishio in analogous art of electroluminescent display discloses (column 3 lines 1-8, column 8 lines 10-14, column 12 lines 17 Figs. 8c and 9) desiccant added to adhesive 33 is deposited in the peripheral region around small size panels comprising pixels. Nishio discloses the placement of desiccant in such a space effectively reduces deterioration of the EL element that may be caused by the exposure to moisture.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include the patterned getter layer between some of the plurality of pixels of the display of Rogers as taught by Nishio for effectively reducing deterioration of EL elements that may be caused from exposure to moisture.

Referring to claim 3 Rogers discloses the patterned getter (desiccant) layer 31 is provided on the cover.

Regarding claims 4 and 5 Rogers discloses (Figs. 1 and 2 column 4 lines 29,30) the patterned getter (desiccant) as a continuous ring is provided at a position that is laterally beyond and surrounding the OLED display area.

Regarding claims 7 and 8 Nishio discloses (column 8 lines 13,14) CaO, which is Group II A metal oxide used as getter material.

Regarding claim 9 Roger discloses (column 6 lines 27-32) thin patterned getter layer in EL device with enhanced operating lifetime.

Regarding claim 16 Rogers discloses (Fig. 2 column 4 lines 37-54, column 5 lines 17-25) a sealing region 21 disposed between the substrate and the cover, the sealing region cooperating with the substrate and the cover to enclose the OLED device.

Claim 17 recites the method of making the OLED apparatus with the same limitations as of the device structure claimed in claim 1 and hence is rejected for the same reason (see rejection of claim 1).

Regarding claim 19 the Examiner notes that the claim limitation that "getter layer provided by applying getter material in the form of paste " is drawn to a process of manufacturing which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113). Therefore, it is the position of the examiner that it would have been obvious to one of ordinary skill in the art that the patterned getter layer

disclosed by Rogers and Nishio is at least a fully functional equivalent to the Applicant's claimed invention.

Regarding claim 20 the Examiner notes that the claim limitation that "paste is applied by technique selected from screen-printing and extrusion " is drawn to a process of manufacturing which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113). Therefore, it is the position of the examiner that it would have been obvious to one of ordinary skill in the art that the patterned getter layer disclosed by Rogers and Nishio is at least a fully functional equivalent to the Applicant's claimed invention.

Referring to claims 43 and 45 Rogers and Nishio disclose the OLED device having light emission from the top.

Claims 2, 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,081,071 to Rogers and U.S. Patent 6,624,570 to Nishio et al. and further in view of U.S. Patent 6,465,953 to Duggal.

Claim 2 differs from Rogers and Nishio in that Rogers and Nishio do not exemplify the patterned getter layer provided on the substrate.

Duggal in analogous art of electroluminescent devices discloses (column 8 lines 39,40) the getter material surface treated on the substrate. It is further noted that this

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getter material having particle size smaller than the characteristic wavelength of light emitted by the organic light emitting device maintains the substantial transparency of the substrate and protects the organic light emitting layer from being damaged by oxygen during a desired period of operation.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to provide the patterned getter layer of OLED device of Rogers and Jones on the substrate as taught by Duggal for protecting the organic light emitting layer from being damaged by oxygen during a desired period of operation.

Referring to claim 12 Duggal discloses (column 4 lines 57-63) light emitting layer comprising hole transporting and electron transporting layers, these additional sublayers increasing the efficiency with which the holes and electrons recombine to produce light.

Regarding claim 13, Duggal discloses (column 1 lines 41-43) anode region, cathode region and the substrate can be transparent when it is desirable to allow light to be emitted from both sides of the device.

Regarding claims 14 and 15 Duggal discloses (column 1 lines 39-41) the electrode positioned on the surface of the light-emitting region is formed transparent and cause to transmit light outside. It is well known in the art that the position of the cathode and anode can be interchanged and hence with an opaque substrate when the cathode disposed over the light-emitting region is transmitting light it is transparent and when the anode disposed over the light-emitting region is transmitting light it is transparent.



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Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,081,071 to Rogers and U.S. Patent 6,624,570 to Nishio et al. and further in view of U.S. Patent 6,383,664 to Bernius et al.

Referring to claim 18 Rogers and Nishio are silent about getter layer comprising a metal.

Bernius in analogous art of protective packaging of optoelectronic devices with organic electroluminescent elements discloses (column 5 lines 64 – column 6 lines 7) getter film fabricated from Group IIA metals such as calcium, barium, magnesium provided by vacuum deposition. It is within the teaching of art that these metals are widely used as gettering material for trapping traces of moisture, oxygen and other contaminants.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to specify Group IIA metals vacuum deposited as getters as disclosed by Bernius for the getters of OLED device of Rogers and Nishio since these metals are commonly used as gettering material for trapping traces of moisture, oxygen and other contaminants and selection of known material for a known purpose is within the skill of art.

Claims 26, 28, 29, 32, 38-40, 44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,081,071 to Rogers and U.S. Patent 6,624,570 to Nishio et al. and further in view of U.S. Patent 6,465,953 to Duggal.

Regarding claim 26 Roger and Nishio disclose all the limitations same as that of claim 1 but do not exemplify the substrate and the cover being flexible.

Duggal discloses (column 2 lines 20-22,49,50) plastic substrates can be mechanically flexible. It is to be noted that flexible substrate and cover for an organic EL device well known in the art, yield flexible display device which can be advantageously applied in different bendable surfaces.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include flexible plastic substrate and cover for organic EL element of Rogers as suggested by Duggal for providing the benefit of manufacturing flexible display which can be applied in bendable surfaces.

Claim 28 essentially recites the limitations same as of claim 7 and hence is rejected for the same reason.

Claim 29 essentially recites the limitations same as of claim 9 and hence is rejected for the same reason.

Regarding claim 32 Rogers, Nishio and Duggal disclose the claimed invention except for the patterned getter layer provided adjacent to each of the plurality of pixels. It is to be noted that providing the getter layer adjacent to each of the plurality of pixels results in increasing the getter action. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention pattern the getter layer adjacent to each of the plurality of pixels for enhancing the gettering action and hence increasing the operating lifetime of the display.

Claims 38-40 essentially disclose the same limitations as of claims 13-15 respectively and hence are rejected for the same reasons.

Regarding claims 44 and 46 Rogers, Nishio and Duggal disclose OLED device structure having light emission from flexible top.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,081,071 to Rogers and further in view of U.S. Patent 6,465,953 to Duggal.

Regarding claim 30 Rogers discloses all the limitations same as claim 1 and additionally Rogers discloses (column 4 lines 16-32 Fig.3) patterned getter layer comprising plurality of narrow bands 30,31 of getter material.

Rogers does not exemplify the substrate and the cover being flexible.

Duggal in the same field of endeavor of organic electroluminescent devices discloses (column 2 lines 20-22,49,50) plastic substrates can be mechanically flexible. It is to be noted that flexible substrate and cover for an organic EL device well known in the art, yield flexible display device which can be advantageously applied in different bendable surfaces.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include flexible plastic substrate and cover for organic EL element of Rogers as suggested by Duggal for providing the benefit of manufacturing flexible display which can be applied in bendable surfaces.

Claims 31,42 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 6,081,071 to Rogers, U.S. Patent 6,624,570 to Nishio et al., U.S. Patent 6,465,953 to Duggal and further in view of U. S. Patent 5,866,978 to Jones et al.

Regarding claim 31 Rogers, Nishio and Duggal fail to disclose the getter layer comprising plurality of dots of getter material.

Jones in pertinent art of getters in display panels discloses (Figs. 2a, 2b column 9 lines 11-38) getter structure provided in the grid or matrix in the form of dots of getter material. It is to be noted that getter in the form of dots provides the advantage of getters suitably dispersed over the desired surface of the display panel.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to apply the patterned getter layer in the display device of Rogers, Nishio and Duggal in the form of dots as suggested by Jones for advantageously dispersing the getter material in the desired area.

Claims 27,33, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 6,081,071 to Rogers, U.S. Patent 6,624,570 to Nishio et al., U.S. Patent 6,465,953 to Duggal and further in view of U. S. Patent 6,146,225 to Sheats et al.

Regarding claim 27 Rogers, Nishio and Duggal do not disclose a composite barrier region comprising two or more planarizing layers and two or more high density layers.

Sheats et al. disclose (column 2 lines 17-26, column 3 lines 15-28, Fig 1) the barrier region preventing oxygen and moisture from penetrating inside includes two planarizing (polymer) layers 191,193 and high-density layers 192. It is noted that the planarizing layer provides exceptionally smooth low-defect surface for the application of

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the oxide (high density) layer and the high-density layer provides good barrier for water and oxygen.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the flexible substrate or cover of the OLED device of Rogers, Nishio and Duggal with a composite barrier region comprising planarizing and high-density layers as taught by Sheats et al. for preventing water or oxygen from reaching the active layers of OLED device.

Claims 33, 34 and 36 essentially recite the same limitations as of claim 27 and hence are rejected for the same reason.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 6,081,071 to Rogers, U.S. Patent 6,624,570 to Nishio et al. U.S. Patent 6,465,953 to Duggal and U. S. Patent 6,146,225 to Sheats et al. and further in view of U.S. Patent 5,757,126 to Harvey et al.

Regarding claim Roger, Nishio, Duggal and Sheats do not disclose the flexible cover comprising substrate-sublayer.

Harvey discloses (Fig. 5 column 5 lines 30-65) cover (sealing system) 22 comprising substrate sub-layers 24(buffer layer), 26 (thermal coefficient matching layer) and 28 (silicon nitride layer). Harvey further discloses this configuration completely encapsulates or hermetically seals the array of the display.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include substrate sublayers in the flexible cover of Roger, Nishio, Sheats

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and Duggal as disclosed by Harvey et al. for hermetically sealing the array of the display.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 6,081,071 to Rogers, U.S. Patent 6,624,570 to Nishio et al. U.S. Patent 6,465,953 to Duggal and U. S. Patent 5,929,562 to Pichler.

Regarding claim 37 Rogers, Nishio and Duggal do not disclose the flexible substrate comprising metal foil.

Pichler in analogous art of organic light emitting devices disclose (column 6 lines 1-5) flexible devices fabricated on flexible substrate such as metal foil.

The selection of known material for a known purpose is generally considered to be within the skill of art. It would have been obvious to use metal foil as disclosed by Pichler for flexible substrate of Rogers, Nishio and Duggal because the selection of known material for a known purpose is generally considered to be within the skill of art.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 17 and 26 have been considered but are moot in view of the new ground(s) of rejection.

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**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.R.

Sikha Roy  
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